Supplementary material

S1a Detailed stratigraphic profile of the Lower Lonquimay Sequence with radiometric (black) and interpolated (red) ages, and interpreted photographs showing each stratigraphic unit. S1b Detailed stratigraphic profile of the Middle and Upper Lonquimay Sequence with radiometric (black) and interpolated (red) ages, and interpreted photographs showing each stratigraphic unit.

S2 Table of matrix-glass analyses of LVC samples. Compositions are reported as mean values and standard deviation of compositions obtained from n spot analyses.

S3 Petrographic descriptions of representative samples for each stratigraphic unit and petrographic group.

S4 a) Eruption probabilities for the different fit-distributions for geological and extended records. b) All distribution functions used to fit the observed repose time distribution using both variable and fixed scale factor A. c) Scatter plots of observed repose times versus preceding repose times used to check the independence of the data sets for the extended and geological record. The black lines show the results of linear regression if the independence test is performed indiscriminately in the "standard" way. The blue line results from the test after deleting the diagonal elements (red), that are artifacts from interpolated ages. d) Variation of moving-average repose time versus end date of repose periods used to test for stationarity for geological and extended records.

S5 Fit parameters of Exponential, Log-logistic and Weibull distributions fitted to the repose time distributions of geological and extended records.

S6 Table of representative clinopyroxene and matrix-glass compositions that were used to compute the listed P-T-conditions and K_D-values as a test for equilibrium.

S7 Representative amphibole compositions and calculated thermobarometric results for each amphibole-bearing sample.